

# CLAIMS

1. Method for the creation, visualisation and management of three-dimensional objects on web pages, suitable for allowing access to three-dimensional  
5 objects present on a web browser (29) of a network of the World-Wide-Web type, characterised in that it comprises a first electronic processing step of said objects, which are treated so as to appear like real objects on standard web pages, said objects being  
10 suitable for interacting with a user, so as to visualise their information present on their outer surfaces, and a second superimposition step of html pages on said surfaces of the objects, so that each face of every object behaves like a standard web  
15 browser (29), supporting its functions.

2. System for the creation, visualisation and management of three-dimensional objects on web pages implementing a relative method according to claim 1, characterised in that it comprises at least two acting  
20 subjects and at least two different hardware configurations, in which a first system comprises a web server (22), where the web pages containing said three-dimensional objects are stored, a series of access keys (25, 26), a computer (22A) and an application programme  
25 for processors suitable for generating the web pages, and a second system comprising means for web browser

(29) execution on one or more processors (24) of end users, at least one software application (30) functioning in the web browser (29) and at least one web server (23), to which the user accesses to download  
5 the contents of at least one web application (28).

3. System according to claim 2, characterised in that said software application (30) consists of the 3D Player active component which, if already present inside said processor (24) of the end user, allows the  
10 generation of a reference file containing the description of said three-dimensional objects to be visualised.

4. System according to claim 2, characterised in that said software application (30), consisting of the 3D  
15 Player active component, can be downloaded automatically from the web server (23) and can be installed in the processor (24) of the end user, so that a plurality of web browsers (29) access said web application (28) simultaneously.

20 5. System according to claim 2, characterised in that said web browser (29) comprises at least one three-dimensional interface, which can be managed in static manner, in other words generated by the authors of a website, or dynamically composed of a server system,  
25 from at least one database (27), for the generation of html pages.

6. System according to claim 2, characterised in that said three-dimensional objects are created and animated by the authors of the site statically or in a dynamic manner, executing a server programme each time one  
5 access a web page.

7. System according to claim 2, characterised in that said web browser (29) executes, as a Windows application, an application of the ActiveX type, the visualisation window of which superimposes over an  
10 underlying web page, said visualisation window comprising an area, in which said three-dimensional object to be represented is not present, which is made completely transparent through a rendering step, so as not to obscure the underlying page.

15 8. System according to claim 4, characterised in that said 3D Player active component allows the user to manipulate the position and orientation of said three-dimensional object in space and guarantees a series of operations which the user completes on interfaces based  
20 upon Hyper-text.

9. Method for creation, visualisation and management according to claim 1, characterised in that it foresees the following steps:

- recognition (1) of data formats in input;
- 25 - validation (8), by means of an authentication file, and verification with access keys, in the case in which

- a text format is recognised;
- reading (3) of the description of elements by at least one document on the net (4, 5) and creation of at least one three-dimensional object in memory;
  - 5 - realisation (9) of a new web browser (29) for each face of said three-dimensional object associated with the address of a html file or with a whatever server application which restores a html file;
  - loading of the html pages;
  - 10 - subsequent implementation of a rendering step (6) and rests listening step for a subsequent input (13) made by the user;
  - implementation of a texturing step (11), in which the image of said html page visualised in the web browser
  - 15 (29) is memorised;
  - derivation of a physical image of the web page by said web browser (29) in consecutive moments in time and sending of said image to a rendering block (6) together with the geometric and physical description of
  - 20 said three-dimensional object at the same moment, said rendering block (6) being capable of generating and visualising a perspective image of said object on a monitor (12).

10. Method according to claim 9, characterised in that

25 said description contains information relative to the geometry and the animation of said three-dimensional

object of the component and the URL addresses of every  
html element present on each surface of said three-  
dimensional object.

11. Method according to claim 9, characterised in that  
5 said elements comprise the number of sides, the length  
of each side, the dimensions of the surfaces, the  
animations, the preferential manners and the degrees of  
freedom of each three-dimensional object.

12. Method according to claim 9, characterised in that  
10 said rendering step (6) uses the geometric data of said  
three-dimensional object and the kinematic data  
relative to the position of said object in a certain  
reference system of said active component, said data  
being lifted from images extracted from said web  
15 browsers (29) to be visualised on the surfaces of the  
object.

13. Method according to claim 12, characterised in that  
said rendering step (6) comprises a first step (17),  
which carries out an algorithm with linear scanning,  
20 during which the geometric and positional information  
of said three-dimensional object is processed and said  
information is related from the point of view of the  
observer to obtain a perspective effect of said object.

14. Method according to claim 13, characterised in that  
25 said rendering step (6) comprises a second step (18) in  
which an image or bitmap (19) is generated of the

perspective representation of the object, determined by the position in space from the point of view of the observer.

15. Method according to claim 14, characterised in that  
5 said rendering step generates a further output (20), which guarantees the hypertext function of the pages visualised on each three-dimensional objects.

16. Method according to claim 11, characterised in that  
10 said animation step of the three-dimensional objects is executed in such a way that with every animation parameter of each three-dimensional object can be associated a function which describes their dynamic behaviour in time.

17. Method according to claim 1, characterised in that  
15 said three-dimensional objects have states of position which can be set by the user, through interaction with the mouse.

18. Method according to claim 1, characterised in that  
20 said three-dimensional components are generated in a static or dynamic manner.

19. Method according to claim 18, characterised in that  
said static manner foresees the operation of a software application (31), which allows a web page author to construct the three-dimensional objects in a visual  
25 manner and to compose them on a html page, said application producing in output a file in binary format

containing the necessary information to reconstruct said three-dimensional object.

20. Method according to claim 18, characterised in that said dynamic manner is executed (38) by said server,  
5 which generates three-dimensional components according, for example, to registered user or events started up by the user himself during navigation.

21. Method according to claim 18, characterised in that said dynamic manner is executed through a step (33) in  
10 which the user accesses a web page containing a three-dimensional object and, before said html pages are physically downloaded, the server executes the script servers and the result, consisting of formatted text files, is transmitted (40) to a user browser.

22. Method according to claim 21, characterised in that said 3D Player active component reads (41) the file format type, reads (42) a licensing file of said server and compares an access key with the internet domain name of the site and, in the case in which said licence  
15 is valid, initiates a visualisation procedure (36), whereas, in the case in which said licence is not valid (44), terminates execution without visualising the content of said licence file.

23. Method according to claims 3 and 5, characterised  
25 in that it foresees the realisation of a proprietary file format for the description of three-dimensional

components, making said active component capable of interpreting files, in binary or text format, adhering to a predetermined formatting, so as to make the web authors capable of developing script applications using  
5 said three-dimensional interface.

24. Method according to claim 1, characterised in that it foresees the realisation of a software system (31) which allows the generation of three-dimensional objects and the definition of their properties in a  
10 visual and interactive environment, which does not require the writing of HTML code by the author but automatically generates the code instructions necessary for the publication of said objects on a website.

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